

## WHAT IS CLAIMED IS:

### 1. A fuel cell power source system comprising:

a fuel cell for supplying electric power to a load;

an electric power storage device for assisting supply of electric power to the load; and

a switching device, disposed between said fuel cell and said capacitor, for switching connection or disconnection of said fuel cell with said capacitor; and

a control device for controlling said switching device;

wherein when said fuel cell is being connected to said capacitor, said control device detects the voltage difference between a terminal voltage of the capacitor and a terminal voltage of the fuel cell, and when the voltage difference is larger than a predetermined value, said control device executes a chopping control of the switching device.

### 2. A fuel cell power source system comprising:

a fuel cell for supplying electric power to a load;

a capacitor for assisting supply of electric power to the load;

a connecting device, disposed between an output end of said fuel cell and said capacitor, for connecting an output end of the fuel cell and said capacitor; and

a control device for controlling said connecting device as to whether said fuel cell is connected or disconnected with the capacitor,

wherein when said fuel cell is being connected to said capacitor, said control device detects the voltage difference between the terminal voltage of the

fuel cell and the terminal voltage of the capacitor, and when the voltage difference is larger than a predetermined value, said control device controls the connecting device so as to limit an amount of a current flowing from said fuel cell to said capacitor.

3. The fuel cell power source system according to claim 1, wherein said control device connects said fuel to said capacitor after said fuel cell has been activated.

4. The fuel cell power source system according to claim 1, wherein the control apparatus device comprises:

- a primary precharge circuit, disposed downstream of the capacitor, comprising a switching device and a current control device; and

- a secondary precharge circuit, disposed downstream of the fuel cell, comprising a chopping device and a chopping control device;

wherein when the voltage difference between the terminal voltage of the fuel cell and the terminal voltage of the capacitor exceeds a predetermined value, the current limiting device of the primary precharge circuit and the chopping device of the secondary precharge circuit controls an amount of current flowing from the fuel cell flowing to the capacitor, and when a voltage difference between the terminal voltage of the fuel cell and the terminal voltage of the capacitor is reduced below the predetermined value, the primary precharge circuit and the secondary precharge circuit allow current flowing from the fuel cell to the capacitor and to the load.

5. A method for controlling start of a fuel cell vehicle, the fuel cell having:

- a fuel cell provided with a fuel cell driving device for supplying electric power to a load;
- an electric power storage device for assisting supply of electric power to the load;
- a control apparatus for controlling the fuel cell power source system having:
  - a primary precharge circuit disposed downstream of the capacitor, comprising a switching device and a current limiting device; and
  - a secondary precharge circuit disposed downstream of the capacitor, comprising a DC-DC chopper and a chopper control device;
- the control method comprising the steps of:
  - opening the switching device of the primary precharge circuit when the terminal voltage of the capacitor and the terminal voltage of the load reaches an equilibrium voltage after supplying a limited current from the capacitor through the current limiting device;
  - activating the fuel cell by activating the fuel cell driving device by supplying fuel to the fuel cell;
  - detecting a voltage difference between the terminal voltage of the fuel cell and the terminal voltage of the capacitor; and
  - executing a chopping control of the output current of the fuel cell by the DC-DC chopper when the voltage difference exceeds a predetermined value,

and the output current from the fuel cell is supplied to the load when the voltage difference is reduced to be less than a predetermined value.

6. A method of controlling a fuel cell power source system,

the fuel cell power source system having:

a fuel cell provided with a fuel cell driving device for supplying electric power to a load;

a capacitor for assisting supply of electric power to the load including a driving motor;

a control apparatus for controlling the fuel cell power source system having:

a primary precharge circuit disposed downstream of the capacitor, comprising a switching device and a current limiting device; and

a secondary precharge circuit disposed downstream of the capacitor, comprising a DC-DC chopper and a chopper control device;

wherein the control method comprises the steps of:

detecting a voltage difference between a terminal voltage of the capacitor and a terminal voltage of the fuel cell;

limiting the output current of the fuel cell by the DC-DC chopper of the secondary precharge circuit when the voltage difference exceeds a predetermined value; and

opening the secondary precharge circuit to supply the output current from the fuel cell to the capacitor and to the load when the second voltage difference reduces to be less than a second predetermined difference.